REMARKS

Claims 1-20 are pending in the present application.

Claims 1,3-5,7-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,721,269 of Cao et al. ("Cao").

Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,532,088, of Dantu et al. ("Dantu").

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cao in view of U.S. Patent No. 5,241,534 of Omuro et al. ("Omuro").

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Cao. Specifically, the Examiner states that:

> Regarding claim 1, Cao discloses an multi-protocol label switching system (MPLS) having a working path over which data is carried from a source to a destination and further having a protection path over which data from the source to the destination can be carried, a method of initiating an MPLS protection path switch over from the working path to the protection path comprising the steps of:
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> -detecting a failure on the working path at a first switching node (a router along the path that first detects the failure) of the working path (routers along the path monitor the path and report the failure to the source node col. 3 lines 39-46, 48-51);
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> -transmitting a failure notification message from only a first switching node to at least a second, switching node of the working path (if a failure is detected, a router that first detects the failure propagates the physical level maintenance to the source and sink routers, col. 3 lines 48-51);
>
> -routing data from the working path to the protection path upon the receipt of the failure notification message at least one of: the second switching node an a third switching node of the working path, wherein the at least one of the second switching node and the third switching node is at an origin of both the working path and the protection path (the source and sink routers, col. 3 lines 53-56). (6-2-05 Office Action, p. 3)

The Applicants respectfully submit that Cao does not render Claims 1,3-5,7-20 unpatentable under 35 U.S.C. 102(e).

Cao discloses a router that employs explicit routing protocols to establish a plurality of explicitly routed label switched paths between source and sink routers. (Cao, Abstract) A sink router selects one of these explicitly routed paths as a primary path and communicates along that path. (Cao, Abstract) Upon a failure in a path selected as a primary path, a secondary path is instantaneously selected as the new primary path. (Cao, Abstract) In the event of a path failure, it is the sink router that selects the secondary path. (Cao, col. 2, lines 40-41)

Cao does not teach or suggest routing data, by a switching node of the working path, from the working path to the protection path upon receipt of a failure notification message at the switching node, wherein the switching node is at the origin of both the working and protection paths. Throughout the specification, Cao teaches against switching by a switching node at the origin of both the working and protection paths. An instance of this is in the Summary, where Cao discloses "[i]n response to the physical layer failure indication, the failure is propagated and the exit router selects an alternative, previously established, path for immediate use." (Cao, col. 2, lines 64-67) Another instance of this is in the description of FIG. 1, where Cao discloses that for a primary path S-A-B-E and a secondary path S-C-D-E, upon a failure of the primary path S-A-B-E, an egress router (router E) switches to the secondary path S-C-D-E. (Cao, col. 6, lines 5-16)

Furthermore, Cao discloses that it is the egress router that performs hardware protection switching when Cao delineates the roles performed by an ingress router and an egress router. Specifically, Cao discloses that after a failure of an explicit label switched routing path (ERLSP), both the ingress router and egress router will receive Nak messages for the ERLSP and both routers will respond to the messages, "except that, the egress node, will determine whether the failed ERLSP is protected." (Cao, col. 10, lines 42-47) If the ERLSP is protected, the egress LSR changes the protection status of the failed ERLSP from "backup" to "unprotected" and completes the hardware protection switching. (Cao, col. 10, lines 47-53) Performing a different role than the egress router, the ingress router "will determine whether the failed link involves a

protected ERLSP and if the ERLSP was protected, the ingress router will change the protection status of the ERLSP from 1 to 0", so that the protected flow is used as the active flow. (Cao, col. 10, lines 55-64) In summary, while both the ingress and egress routers are alerted to the path failure, it is the egress router that switches to the secondary path for communications. (Cao, col. 3, lines 53-55)

In contrast, currently amended Claim 1 is limited to:

> 1. In a multi-protocol label switching system (MPLS) having a working path over which data is carried from a source to a destination and further having a protection path over which data from the source to the destination can be carried, a method of initiating an MPLS protection path switch over from the working path to the protection path comprising:
>
> a. detecting a failure on the working path at a first switching node of said working path;
>
> b. transmitting a failure notification message from only a first switching node to at least a second, switching node of the working path; and
>
> c. routing data, by at least one of the second switching node and the third switching node of the working path, from the working path to the protection path upon the receipt of the failure notification message at the at least one of the second switching node and the third switching node, wherein the at least one of the second switching node and the third switching node is at an origin of both the working path and the protection path. (Emphasis added)

Independent Claims 4, 6 and 12 include similar limitations. Claims 2, 3, 5, 7-11, 13-20 directly or indirectly depend on independent Claims 1, 4, 6, and 12.

Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipated by Dantu. Specifically, the Examiner states that:

> Regarding claim 6, Dantu discloses a multi-protocol label switching (MPLS) system comprised of a first MPLS protection switch having a data input port into which MPLS data is received from a data source (the central network node, see figure 3);
>
> a second MPLS switching system coupled to said first MPLS protection switch via a first data path carrying MPLS data, said first data path comprising an MPLS working path (either network node 312 or 320, see figure 3);

> a third MPLS switching system coupled to said first MPLS protection switch via a second data path capable of carrying MPLS data, said second data path comprising an MPLS protection path (either network node 312 or 320, see figure 3);
> an upstream reverse notification tree (RNT) data path extending at least between said second MPLS switching system to said MPLS protection switch carrying data by which a switch over from a working path to a protection path can be initiated (see col. 9 lines 8-33 and figure 3). (6-2-05 Office Action, pp. 7-8)

The Applicants respectfully submit that Dantu does not render Claim 6 unpatentable under 35 U.S.C. 102(e).

Dantu discloses a system for transporting IP user traffic over a fiber optic ring network that includes a plurality of network nodes. (Dantu, Abstract) In the system, an ingress node is connected to the internet to receive path information (e.g. communication link failures) to determine IP packet routing whenever it receives a packet of data that is to be transmitted to a specified location. (Dantu, Col. 6, lines 55-64; FIG. 1; Col. 13, lines 42-49; FIG. 3)

Dantu does not teach or suggest an upstream reverse notification tree data path that follows the MPLS working path that upon a failure can carry a failure notification by which in response to the failure a switchover from the MPLS working path to an MPLS protection path can be initiated. On the contrary, Dantu discloses the periodic generation of status signals from IP routers to a central node. (Dantu, col. 13, lines 29-41) It is through these signals that the central node may determine and construct routing tables that are used for directing user traffic to specific internet locations. (Dantu, col. 13, lines 38-41) Specifically, Dantu discloses for one embodiment, every IP router periodically generates network status requests that are transmitted to all IP routers and nodes that are electrically present and coupled to the internet. (Dantu, col. 13, lines 29-33) Furthermore, Dantu discloses for other embodiments, every IP router and node periodically and automatically generates a status signal that is transmitted to all other IP nodes and routers. (Dantu, col. 13, lines 33-35) Regardless of the type of scheme that is used, the

central node periodically receives signals transmitted by nodes and routers coupled to the internet. (Dantu, col. 13, lines 35-38)

In contrast, currently amended Claim 6 is limited to:

> 6. A multi-protocol label switching (MPLS) system comprised of:
> a first MPLS protection switch having a data input port into which MPLS data is received from a data source;
> a second MPLS switching system coupled to the first MPLS protection switch via a first data path carrying MPLS data, the first data path comprising an MPLS working path;
> a third MPLS switching system coupled to the first MPLS protection switch via a second data path capable of carrying MPLS data, the second data path comprising an MPLS protection path;
> an upstream reverse notification tree (RNT) data path that follows the MPLS working path and extends at least between the second MPLS switching system to the first MPLS protection switch, that upon a failure can carry a failure notification by which in response to the failure a switchover from the MPLS working path to the MPLS protection path, by a node at an origin of the MPLS working path and the MPLS protection path, can be initiated. (Emphasis added)

In view of the arguments set forth herein, it is respectfully submitted that the applicable rejections have been overcome. Accordingly, it is respectfully submitted that Claims 1-20 should be found in condition for allowance.

If there are any additional charges, please charge them to our Deposit Account Number 500-654.

Respectfully submitted,

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